	Application No.	Applicant(s)
Notice of Allowability	09/702,292	LIU ET AL.
	Examiner	Art Unit	
	Baoquoc N To	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to <u>05/13/04</u>.

2. ☒ The allowed claim(s) is/are <u>2-15,20-23,28-35,37 and 39-42</u>.

3. ☒ The drawings filed on <u>30 October 2000</u> are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☐ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

JEAN M. CORRIELUS
PRIMARY EXAMINER

DETAILED ACTION

1.　　Claims 2-41 are in this application, claims 24-26 and 36 are canceled by the examiner amendment, claims 2-15, 20, 22-23, 28-35, 37 and 39-42 are pending in this application.

EXAMINER'S AMENDMENT

2.　　An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Emmanuel Rivera on 05/13/04.

Please cancel these claims 24-26 and 36.

[Please replace] claim 2 [with;-- 2.] A method comprising:

initiating a search for images based on at least one query keyword in a query;

identifying, during the search, first images having associated keywords that match the query keyword, and second images that contain low-level features similar to those of the first images identified as matching the query keyword, wherein the low-levels features comprise color, shape, and texture and the low-level features do not match the search query;

ranking the first and second images;

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presenting the first and second images to a user; and

receiving feedback from the user as to whether the first and second images are

relevant to the query further comprising:

assigning a large weight to an association between the query keyword and the

images deemed relevant by the user and/or assigning a small weight to an association

between the query keyword and the example image.--

[Please replace claim 4 with;-- 4.] A method comprising:

initiating a search for images based on at least one query keyword in a query;

identifying, during the search, first images having associated keywords that

match the query keyword, and second images that contain low-level features similar to

those of the first images identified as matching the query keyword wherein the low-

levels features comprise color, shape and texture and the low-level features do not

match the search query;

presenting the first and second images to a user;

monitoring feedback from the user as to which of the first and second images are

relevant to the query; and

receiving feedback from the user as to whether the first and second images are

relevant to the query comprising:

assigning a large weight to an association between the query keyword and the

images deemed relevant by the user and/or assigning a small weight to an association

between the query keyword and the example image.--

D2

[Please replace claim 5 with;-- 5.] A method comprising:

initiating a search for images based on at least one query keyword in a query;

identifying, during the search, first images having associated keywords that

match the query keyword, and second images that contain low-level features similar to

those of the first images identified as matching the query keyword wherein the low-

levels features comprise color, shape, and size and the low-level features do not match

the search query;

presenting the first and second images to a user;

receiving feedback from the user as to whether the first and second images are

relevant to the query;

learning how the first and second images are identified based on the feedback

from the user; and

receiving feedback from the user as to whether the first and second images are

relevant to the query further comprising:

assigning a large weight to an association between the query keyword and the

images deemed relevant by the user and/or assigning a small weight to an association

between the query keyword and the example image.--

D3

[Please replace claim 12 with;-- 12.] A method comprising:

permitting entry of both keyword-based queries and content-based queries;

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D3

finding a first set of images using semantic-based image retrieval and a second set of

images using low-level feature-based image retrieval based on the first set of images

wherein the low-levels features comprise color, shape and texture and the low-level

features do not match the semantic-based and the low-level features do not match the

keyword-based or content-based;

presenting the images to a user so that the user can indicate whether the images

are relevant;

conducting semantic-based relevance feedback and low-level feature-based

relevance feedback in an integrated fashion; and

receiving feedback from the user as to whether the first and second images are

relevant to the query further comprising:

assigning a large weight to an association between the query keyword and the images

deemed relevant by the user and/or assigning a small weight to an association between

the query keyword and the example image.--

Please cancel claim 24.

Please cancel claim 25.

Please cancel claim 26.

D4   [Please replace claim 20 with;-- 20.] A method comprising:

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D4

identifying the set of images from the presenting retrieved using the at least one keyword and second images that contain low-level features similar to those of the first images identified as matching the at least one keyword, wherein the low-levels features comprise color, shape and texture and the low-level features do not match the search query;

presenting a result set of images that are returned from an image retrieval search of a query having at least one keyword;

monitoring feedback from a user as to whether the images in the result set are relevant to the query;

in an event that the user selects at least one image as being relevant to the query, associating the keyword in the query with the selected image to form a first keyword-image association and assigning a comparatively large weight to the first keyword-image association; and

in an event that the user identifies an example image for refinement of the search, associating the keyword in the query with the example image to form a second keyword-image association and assigning a comparatively small weight to the second keyword-image association.--

D5

[Please replace claim 28 with;-- 28.] An image retrieval system comprising:

a query handler to handle both keyword-based queries having one or more search keywords and content-based queries having one or more low-level features of an image; and

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a feature and semantic matcher to identify at least one of (1) first images having

keywords that match the search keywords from a keyword-based query, and (2) second

images having low-level features similar to the low-level features of a content-based

query based on the first images, wherein the feature and semantic matcher ranks the

images, and the low-level features comprise color, shape and texture, and the low-level

features do not match the keyword-based or content-based;

presenting the first and second images to a user; and

receiving feedback from the user as to whether the first and second images are

relevant to the query further comprising:

assigning a large weight to an association between the query keyword and the

images deemed relevant by the user and/or assigning a small weight to an association

between the query keyword and the example image.--

[Please replace claim 32 with;-- 32.] An image retrieval system comprising:

a query handler to handle both keyword-based queries having one or more

search keywords and content-based queries having one or more low-level features of

an image;

a feature and semantic matcher to identify at least one of (1) first images having

keywords that match the search keywords from a keyword-based query, and (2) second

images having low-level features similar to the low-level features of a content-based

query based on the first images, wherein the low-level features comprise color, shape

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and texture and the low-level features do not match the keyword-based or the content-based;

a user interface to present the images identified by the feature and semantic matcher to a user, the user interface allowing the user to indicate whether the images are relevant to the query; and

a feedback analyzer to train the image retrieval system based on user feedback as to relevancy, wherein the feedback analyzer to assign a large weight to an association between the query keyword and the images deemed relevant by the user and/or feedback analyzer to assign a small weight to an association between the query keyword and the example image and/or a feedback analyzer to assign a small weight to an association between the search keywords and the example image.--

Please cancel claim 36.

[Please replace] claim 39 [with;-- 39.] A computer-readable medium having computer-executable instructions that, when executed, directs a computer to:

find a first set of images using both semantic-based image retrieval, and a second set of images using low-level feature-based image retrieval based on the first set of images, wherein the low-level features comprise color, shape and texture and the low-level features do not match the sematic-based or feature-based;

present the images to a user so that the user can indicate whether the images are relevant; and

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D1

concurrently conduct semantic-based relevance feedback and low-level feature-based relevance feedback,

wherein the receiving feedback from the user as to whether the first and second images are relevant to the query further comprising:

assigning a large weight to an association between the query keyword and the images deemed relevant by the user and/or assigning a small weight to an association between the query keyword and the example image.--

Allowable Subject Matter

3.   Claims 2-15, 20, 22-23, 28-35, 37 and 39-42 are allowed over prior art made of record.

The following is an examiner's statement of reasons for allowance: None of the non prior art alone or incombination neither teaches nor suggest "initiating a search for images based on at least one query keyword in a query; identifying, during the search, first images having associated keywords that match the query keyword, and second images that contain low-level features similar to those of the first images identified as matching the query keyword, wherein the low-levels features comprise color, shape, and texture and the low-level features do not match the search query; ranking the first and second images; presenting the first and second images to a user; and receiving feedback from the user as to whether the first and second images are relevant to the query further comprising: assigning a large weight to an association between the query

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keyword and the images deemed relevant by the user and/or assigning a small weight

to an association between the query keyword and the example image."

Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

Conclusion

4.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

    Aggarwal et al. (US. Patent No. 6,728,706 B2)   Patent date: 06/03/2003

    Fox et al.   (US. Patent No. 6,574,632 B2)   Patent date: 03/03/2003

    Shevade et al., "an experiental annotation system", Year 2003, ISBA:1-508113,

page 91-98.

    Lai et al.,"PBIR-MM: multimodal image retrieval and annotation", Year 2002,

ISBN: 1-58113-620-X, page 421-422.

Contact information

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Baoquoc N. To whose telephone number is (703) 305-

1949 or via e-mail BaoquocN.To@uspto.gov. The examiner can normally be reached

on Monday-Friday: 8:00 AM – 4:30 PM, EST.

    If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Breene can be reached at (703) 305-9790.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231.

The fax numbers for the organization where this application or proceeding is assigned are as follow:

(703) 872-9306 [Official Communication]

Hand-delivered responses should be brought to:

Crystal Park II

2121 Crystal Drive

Arlington, VA 22202

Fourth Floor (Receptionist).

Baoquoc N. To

May 13, 2004

JEAN M. CORRIELUS
PRIMARY EXAMINER

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